



Polyयांत्रिकी



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FROM THE DESK OF HOD (ME)



Ms. Gargi Vyas
Acting HOD (ME)
IIMT College of Polytechnic

A Comprehensive Analysis on IoT based Smart Home Renewable Energy Controller Devices

This review discusses smart home renewable energy controllers, which collect data from sensors, process it, and automatically manage home appliances to improve energy efficiency, comfort, and safety.

It explains the integration of renewable energy sources such as solar power, batteries, and the power grid, along with applications in home automation, power management, smart grids, and education. The review also highlights technologies like machine learning, blockchain, and edge computing, while addressing challenges including high costs, data security, device integration, and real-time performance.

It shows how smart home technology is making homes more efficient, secure, and sustainable.

Smart home controllers act as the central hub for managing household appliances by collecting sensor data and automatically controlling devices to improve energy efficiency, comfort, and security.

They integrate IoT, artificial intelligence, cloud computing, and renewable energy sources such as solar panels, batteries, and the power grid for efficient energy management.

Recent studies highlight their role in home automation, remote monitoring, energy optimization, and renewable energy integration while addressing challenges such as security, cost, and interoperability.

Overall, smart home controllers are transforming traditional homes into intelligent, energy-efficient, and sustainable living environments.

Conclusion

Research on IoT-based smart home renewable energy controllers shows that these systems have evolved into intelligent energy management platforms integrating IoT, AI, cloud computing, and renewable energy technologies.

They enable efficient real-time monitoring and control of home appliances while improving energy efficiency and user comfort.

Future developments focusing on AI, blockchain, and digital twin technologies are expected to enhance system reliability, security, and decision-making, making smart home energy management systems more efficient, sustainable, and user-friendly.



Department of Mechanical Engineering



INDUSTRIAL VISIT

The Department of Mechanical Engineering organized an industrial visit to FANUC India Private Limited, Technology Development Center, IMT Manesar, Gurugram, on 21 February 2025.

A total of 24 students accompanied by two faculty members, Mr. Yash Pratap Singh (Mechanical Engineering) and Mirtyunjay Kumar (Electrical Engineering), participated in the visit. The objective was to provide students with practical exposure to modern industrial automation, manufacturing processes, CNC machines, robotics, and workplace safety.

During the visit, students observed advanced manufacturing technologies, interacted with industry experts, and gained valuable insights into real-world engineering practices and career opportunities. The visit helped bridge the gap between theoretical knowledge and practical applications while enhancing students' technical skills, industry awareness, and understanding of automation technologies.



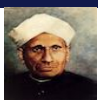
ALUMNI CONNECT

The Department of Electrical Engineering, IIMT College of Polytechnic, Greater Noida, organized an Alumni Talk under the Alumni Cell on 8 April 2026 at Visvesvaraya Hall. The session was delivered by Mr. Simarpreet Singh Kindra, Entrepreneur and Director of Khalsa Agency Pvt. Ltd., and an alumnus of the 2019–22 batch.

The event aimed to connect current students with alumni and provide insights into entrepreneurship and career development. Mr. Simarpreet shared his journey from being a diploma student to becoming a successful entrepreneur, highlighting the challenges, opportunities, and lessons he experienced along the way.

He emphasized the importance of strong technical knowledge, leadership, communication skills, adaptability, continuous learning, and staying updated with emerging technologies. He also encouraged students to explore entrepreneurship as a career option and motivated them to build confidence and pursue their goals with determination. The interactive session inspired students through practical experiences and valuable career guidance.

The event concluded with a vote of thanks to the Director, Dean (R&D), Head of the Department, faculty members, and all participants for their support in making the Alumni Talk a great success.



Department of Civil Engineering



GUEST LECTURE

The Department of Civil Engineering, IIMT College of Polytechnic, Greater Noida, organized a Guest Lecture on 09 April 2026 from 9:00 AM to 11:00 AM in Smart Classroom No. 308. The session was conducted by Mr. Jitendra Pratap Singh, Structural Engineer at Denfab Engineers Pvt. Ltd., who shared his valuable industry experience and practical knowledge with the students.

The lecture focused on various aspects of structural engineering, including building design principles, structural safety, fabrication techniques, and detailing practices used in modern construction. The speaker emphasized the importance of proper fabrication and detailing in ensuring the strength, stability, and durability of structures. He also shared practical examples from real-life projects.

The session was interactive, providing students with valuable industry insights and a better understanding of modern structural engineering practices. It also motivated them to enhance their technical skills for future careers.



Department of Civil Engineering
is organizing
GUEST LECTURE ON
STRUCTURAL ENGINEERING & BUILDING DESIGN
"From Theory to Real Structures"

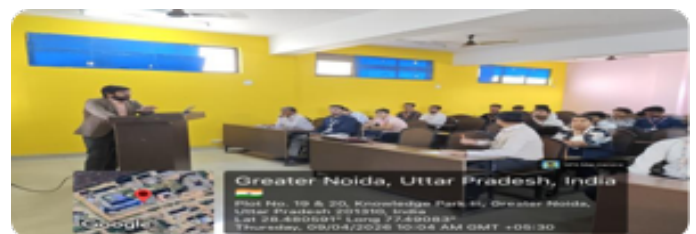
Highlights:

- Practical exposure to real-world structural design
- Career guidance in structural engineering
- Industry insights on fabrication & detailing
- Interaction with industry expert

Guest Speaker
MR. JITENDRA PRATAP SINGH
Structural Engineer
Denfab Engineers Pvt. Ltd.

Smart Class Room No. 308
Thursday, 9th April 2026 | 9:00 AM - 10:00 AM

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Department of Electrical Engineering



NATIONAL CONFERENCE

Polytechnic successfully organized the 5th National Conference, RISEM-2026, bringing together researchers, academicians, and students from leading institutions across India. Over 100 research papers were received, with 53 selected for presentation after peer review. The conference featured sessions on AI, Data Science, Engineering, Energy, and Management.

Chief Guest Prof. (Dr.) Sanjeev Goyal emphasized the importance of innovation and research for national development. The event concluded with certificate distribution and reaffirmed IIMT's commitment to promoting research and academic excellence.

Prof. Umesh Kumar, Director of IIMT College of Polytechnic, highlighted the role of such conferences in promoting research culture and academic excellence. Mr. Ajay Sharma, Dean (R&D) and Conference Convener, stated that RISEM-2026 successfully provided a platform for knowledge sharing among researchers from diverse disciplines.



Department of Computer Science & Engineering



GUEST LECTURE

The Department of Computer Science & Engineering (CSE), IIMT College of Polytechnic, organized a Guest Lecture on Cloud Computing and Internet of Things (IoT) on 10 April 2026 at Vishveshwarya Hall. The session was delivered by Dr. Karan Verma, Associate Professor, NIT Delhi, with the objective of providing students with practical knowledge of emerging technologies and their industrial applications.

The lecture covered the fundamentals of Cloud Computing, including IaaS, PaaS, SaaS, and major cloud platforms such as AWS, Microsoft Azure, and Google Cloud. It also introduced IoT concepts, real-world applications in smart homes, healthcare, agriculture, and industrial automation, along with the integration of IoT and cloud computing. The speaker discussed security challenges, career opportunities, and demonstrated how IoT devices communicate with cloud servers.

Students actively participated in the interactive session, making the event highly informative and beneficial for understanding modern technological trends and future career prospects.

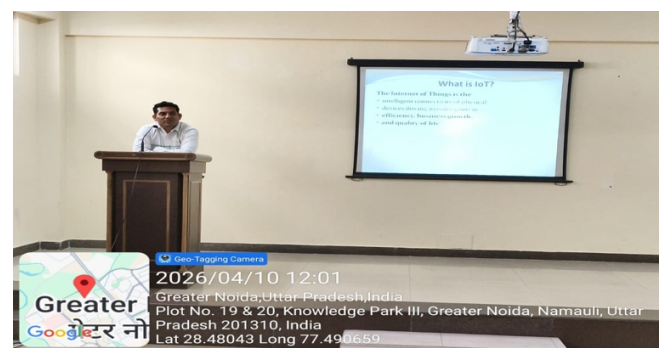


Department of B.Sc. Computer Science
is organizing
Guest Lecture On
Cloud Computing / IoT

Guest Speaker
Dr. Karan Verma
Associate Professor
Computer Science & Engineering
NIT Delhi

Vishveshwarya Hall
Friday, 10th April 2026 | 10:00 AM Onwards

www.iimtindia.net



FACULTY CORNER

Statistical Quality Control in General Manufacturing: Principles, Methods and Contemporary Applications

Statistical Quality Control (SQC) is a data-driven approach used to monitor and improve manufacturing quality. This paper reviews key SQC tools, including Statistical Process Control (SPC), acceptance sampling, control charts, process capability analysis, and design of experiments.

It also discusses the integration of SQC with Lean, Six Sigma, and Industry 4.0 technologies. The study highlights that effective implementation of SQC reduces process variability, defects, and production costs while improving product quality, customer satisfaction, and regulatory compliance.

Statistical Quality Control (SQC) is a systematic, data-driven approach used to improve product quality, reduce process variation, and ensure consistent manufacturing performance. Developed from Walter A. Shewhart's control chart concept and later advanced by W. Edwards Deming and Joseph M. Juran, SQC shifted the focus from detecting defects through inspection to preventing them by controlling manufacturing processes.

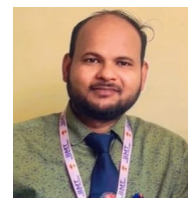
It includes techniques such as statistical process control, process capability analysis, and acceptance sampling to monitor and improve production quality. These tools help manufacturers identify process variations, reduce defects, lower production costs, and make informed quality decisions.

With the emergence of Industry 4.0, the Internet of Things (IoT), artificial intelligence (AI), and real-time data analytics, SQC has evolved into a smart quality management system that enables continuous monitoring, predictive analysis, and improved operational efficiency in modern manufacturing industries.

Statistical Quality Control (SQC) remains a vital tool for improving quality and productivity in modern manufacturing. It helps organizations reduce process variation, minimize defects, improve efficiency, and enhance customer satisfaction through data-driven decision-making.

This review highlights the key principles, tools, and applications of SQC, including process capability analysis, measurement system analysis, and its integration with Lean, Six Sigma, and Industry 4.0 technologies. The study also identifies challenges such as implementation complexity, organizational commitment, and data management.

A strong commitment to quality, supported by skilled personnel and modern technologies, is essential for achieving long-term manufacturing excellence.



Mr. Girjesh Kumar
M. Tech (Fluids & Thermal
Engineering)
Lecturer, ME (P)
IIMT College of Polytechnic



7 Nov 1888-
21 Nov 1970

"The essence of the scientific spirit is to realize what a wonderful world it is that we live in."



STUDENT CORNER

THE IMPORTANCE OF SKILL DEVELOPMENT IN STUDENT LIFE

Students need more than academic knowledge to succeed in today's competitive world. Skill development helps them become confident, adaptable, and industry-ready.

Importance of Skill Development: Developing technical, communication, leadership, and problem-solving skills prepares students for higher education and employment. It also improves creativity and decision-making abilities.

Impact on Career Growth: Students with strong practical skills perform better in interviews, internships, and workplace environments. Continuous learning also helps them stay updated with emerging technologies.

Conclusion: Skill development is the key to personal and professional success. By learning new skills, students can build a brighter future and achieve their career goals.



Gopal Singh
ME, 2nd Yr

GENERAL CORNER-QUIZ

General Knowledge Questions

1. Which is the largest planet in our Solar System?
2. Who is known as the "Missile Man of India"?
3. Which gas is present in the highest percentage in the Earth's atmosphere?
4. What does CPU stand for?
5. Which organization is responsible for India's space missions?
6. Which is the longest river in India?
7. Who invented the electric bulb?
8. Which instrument is used to measure electric current?
9. What is the SI unit of force?
10. Which Indian city is known as the "Silicon Valley of India"?

Answers of Previous Newsletter General Corner (January-March 2026)

- | | |
|----------------------------|----------------------|
| 1. Australia | 2. Cheetah |
| 3. Albert Einstein | 4. Canberra |
| 5. Central Processing Unit | 6. Alexander Fleming |
| 7. The Andes Mountains | 8. Japan |
| 9. New Delhi | 10. Yen (JPY) |



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Editorial Board Members

FROM THE



**EDITOR'S
DESK**

"We extend our sincere appreciation to our dedicated readers, whose engagement and support drive the success of our esteemed quarterly newsletter. We also express profound gratitude to our talented authors, whose innovative research enriches the scholarly discourse in our field.

Finally, we extend special thanks to our distinguished Editor-in-Chief for his guidance, leadership, and unwavering commitment to excellence.



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